Replace the paragraph starting on page 8, line 17 with the following

Q2

In the method of the present invention, it is assumed that each polyphase output vector depends on a finite number of input super pixels. In general, the input super pixels that contribute to a particular polyphase output vector $\xi[n]$ will be located in a neighborhood around [**n**]. As will be explained in more detail below, the precise pixels will depend on the nature of the camera and imaging optics. The input super pixels that contribute to the polyphase output vector at [**n**] may be identified by a set of displacement vectors $\mathbf{k}_1, \mathbf{k}_2, ..., \mathbf{k}_K$. That is, $\xi[\mathbf{n}]$ depends on $\mathbf{x}[\mathbf{n}+\mathbf{k}_1], \mathbf{x}[\mathbf{n}+\mathbf{k}_2], ..., \mathbf{x}[\mathbf{n}+\mathbf{k}_K]$. In the method of the present invention, $\xi[n]$ is assumed to be linearly dependent on the input super pixels. In the preferred embodiment of the present invention, the set of displacement vectors $\mathbf{k}_1, \mathbf{k}_2, ..., \mathbf{k}_K$ is independent of [**n**], and is arranged in a $k_1 \times k_2$ rectangular grid.

IN THE CLAIMS:

Please cancel claims 1-2 and 7, replace claims 3-6 with the following, and add claims 8-20 below.

Q3 Cont

3. The method of Claim 8, wherein the system also includes a lens system, and wherein the at least one property is focal length of said lens system.

4. The method of Claim 8, wherein the system also includes a lens system, and wherein said property is f-number of the lens system.

5. The method of Claim 8, wherein the operator depends on a source of illumination used to generate the image.

6. The method of Claim 8, wherein said operator depends on the type of scene captured in the image.

8. A method of processing a digital image produced by an optical system including a sensor that detects less than full color at each pixel location, the method comprising:

accessing an operator including an array of weights, values of the weights determined by at least one property of the optical system matrix;

forming a plurality of input vectors from the image, each input vector including a plurality of pixel intensities; and

applying the operator to the input vectors to produce a full color digital image.

9. The method of claim 8, wherein operator compensates for degradation in the optical system.

10. The method of claim 8, wherein each input vector is formed from super pixels.

11. The method of claim 8, wherein the operator is used for all resolutions, and a resulting fixed resolution image is resampled.

12. The method of claim 8, wherein the operator is also based on a set of known images.

13. The method of claim 8, wherein different operators are used for different images.

14. A processor for performing the method of claim 8.

A4 cont'd

15. An article for a processor, the article including computer memory encoded with instructions for causing the processor to perform the method of claim 8.

16. A digital camera including a processor programmed to perform the method of claim 8.

17. The digital camera of claim 16, further comprising memory for storing a plurality of candidate operators; and wherein the processor is programmed to access the operator by selecting the operator from one of the plurality of candidates.

18. A method of generating a linear operator for demosaicing of a digital image by a digital camera, the method comprising using camera parameters to design coefficients for the linear operator.

19. The method of claim 18, wherein a standard noise model and a linear minimization technique are used to generate the coefficients from the camera parameters.

20. A computer programmed to perform the method of claim 18.